

**IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE**

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MULTI PURPOSE MACHINE

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1 **I. TITLE: MULTI PURPOSE MACHINE**

2

3 **II. BACKGROUND OF THE INVENTION**

4

5 **1. Field of the Invention.**

6

7 The present invention relates to portable multi purpose machines,
8 and more particularly, to a multi purpose machine having removable
9 head attachments primarily for personal grooming.

10

11 **2. Description of the Related Art.**

12

13 Many designs for grooming machines have been designed in the
14 past. None of them, however, includes removable head attachments used
15 for multiple purposes including: cutting, shaving, clipping, tooth
16 brushing, vacuuming, and massaging.

17

18 There are no similar multi purpose machines to the best of applicant's
19 knowledge, having removable head attachments, and are primarily for
20 personal grooming.

21

22 **III. SUMMARY OF THE INVENTION**

23

24 A portable grooming machine, comprising a housing; a motor
25 assembly and an electrically powered drive member mounted inside the
26 housing; a power cord assembly removably connected to the housing; and

1 a first head means removably secured upon the housing for cutting hair
2 while vacuuming the hair into the housing. The first head means
3 comprises a first cutter with a first coupling element that when assembled
4 are housed within the first head means. The first coupling element
5 transmits a first drive motion to the first cutter. The first coupling element
6 is adapted to be set in a reciprocating motion by the electrically powered
7 drive member and the first drive motion is transmitted to the first cutter.

8

9 The housing comprises first and second faces having a plurality of
10 tracks. The plurality of tracks receives rails extending from a guard that
11 extends above the first head means in an extended position and below the
12 first head means in a retracted position.

13

14 Second head means are removably secured upon the housing for
15 shaving hair. The second head means comprise a second cutter with a
16 second coupling element that when assembled are housed within the
17 second head means. The second coupling element transmits a second drive
18 motion to the second cutter. The second coupling element is adapted to be
19 set in the reciprocating motion by the electrically powered drive member
20 and the second drive motion is transmitted to the second cutter.

21

22 A third head means is removably secured upon the housing for
23 clipping hair. The third head means comprises a third cutter with a third
24 coupling element that when assembled is housed within the third head
25 means. The third coupling element transmits the second drive motion to
26 the third cutter. The third coupling element is adapted to be set in the
27 reciprocating motion by the electrically powered drive member and the
28 second drive motion is transmitted to the third cutter.

1
2 A fourth head means is removably secured upon the housing for
3 tooth brushing. The fourth head means comprises a circular tooth brush
4 means having an engaging pin to the electrically powered drive member,
5 transmitting either the first drive motion or the second drive motion.

6
7 A fifth head means is removably secured upon the housing for
8 vacuuming. The fifth head means is substantially hollow to receive matter
9 therethrough when the electrically powered drive member is engaged in
10 the first drive motion.

11
12 A sixth head means is removably secured upon the housing for
13 massaging. The sixth head means comprises a massage pad with a fourth
14 coupling element. The fourth coupling element transmits either the first
15 drive motion or the second drive motion to the massage pad. The fourth
16 coupling element is adapted to be set in the reciprocating motion by the
17 electrically powered drive member.

18
19 The housing has first and second switches, the first switch engaging
20 the first drive motion and the second switch engaging the second drive
21 motion. The housing also comprises a jack to receive the power cord
22 assembly. In addition, the housing houses a rechargeable battery system,
23 the rechargeable battery system recharged from the power cord assembly.

24
25 It is therefore one of the main objects of the present invention to
26 provide a portable multi purpose machine having a plurality of removable
27 heads.

28

1 It is another object of this invention to provide a portable multi
2 purpose machine that is primarily used for personal grooming.
3

4 It is yet another object of this invention to provide such a device that
5 is inexpensive to manufacture and maintain while retaining its
6 effectiveness.
7

8 Further objects of the invention will be brought out in the following
9 part of the specification, wherein detailed description is for the purpose of
10 fully disclosing the invention without placing limitations thereon.
11

12 **IV. BRIEF DESCRIPTION OF THE DRAWINGS**

13

14 With the above and other related objects in view, the invention
15 consists in the details of construction and combination of parts as will be
16 more fully understood from the following description, when read in
17 conjunction with the accompanying drawings in which:
18

19 **Figure 1** represents a perspective view of the instant invention.
20

21 **Figure 1a** is a representation of an exploded view of a hair-
22 cutting/vacuum head assembly.
23

24 **Figure 2** shows a perspective view of the housing assembly.
25

26 **Figure 3** illustrates a cut view of the housing assembly taken along
27 the line 3 - 3 as seen in Figure 2.
28

1 **Figure 3a** is a representation of an exploded view of the head
2 assembly underside, male adaptor, and female shaft.
3

4 **Figure 4** represents a perspective view of the instant invention with a
5 dry shaver head assembly.
6

7 **Figure 4a** is a representation of an exploded view of a dry shaver
8 head assembly.
9

10 **Figure 4b** is a representation of an exploded view of a hair clipper
11 head assembly.
12

13 **Figure 4c** is a representation of an exploded view of a toothbrush
14 head assembly.
15

16 **Figure 4d** is a representation of a vacuum head assembly.
17

18 **Figure 4e** is a representation of a massage head assembly.
19

20 **Figure 5** shows a perspective view of the power supply cord
21 assembly.
22

23 **V. DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT** 24

25 Referring now to the drawings, where the present invention is
26 generally referred to with numeral 10, it can be observed that it basically
27 includes housing 20, motor assembly 70, head assembly 90, and power
28 supply cord assembly 600.

1
2 As seen in figure 1, seated on housing 20 is a hair-cutting/vacuum
3 head assembly 90 having detachably secured head 92. Instant invention 10
4 comprises housing 20 having face 22 on its front side and face 24 on its rear
5 side, seen in figure 3. Arranged on each side where faces 22 and 24 meet,
6 are switch 30 and vacuum switch 32. Provided at end 36 where faces 22
7 and 24 also meet is socket 44 for connection to power supply cord assembly
8 600, seen in figure 5. Housing 20 has indicator lights 38 and 40. Indicator
9 lights 38 indicate the amount of battery power remaining for instant
10 invention 10 to operate. When all of indicator lights 38 are lit, it indicates
11 full battery charge in battery 52, seen in figure 3, and when none of
12 indicator lights 38 are lit, it indicates no battery charge remaining in battery
13 52. Indicator light 40 illuminates when power supply cord assembly 600 is
14 connected and supplying electrical power to charge/recharge battery 52.
15 Also seen on housing 20 is speed control lever 46 that rides within channel
16 47. Speed control lever 46 controls the speed at which motor assembly 70 is
17 operating. Guard 28 has rails 29, which slide upon tracks 26. A user may
18 adjust guard 28 to a predetermined height when cutting hair, wherein hair
19 to be cut is placed through the mid section of guard 28 and is cut by head
20 92. The user may cut hair utilizing head 92 while vacuuming the hair
21 simultaneously when activating instant invention 10 with vacuum switch
22 32.

23
24 Figure 1a shows an exploded view of the removable head assembly
25 90 in which a hair-cutting/vacuum unit comprises an under cutter 95 with
26 a coupling element 94, which when assembled, is housed within head 92.
27 Coupling element 94 transmits the drive motion to under cutter 95.
28 Coupling element 94, which is adapted to be set in a reciprocating motion

1 by the electric drive mechanism from motor 70, is coupled via drive pin 88
2 mounted upon male adaptor 77, as seen in figure 3a. Hair that is placed
3 upon cutting foil 91 is cut by under cutter 95 and falls through either side
4 of coupling element 94 as it is vacuumed. Coupling element 94 has
5 aperture 96 for insertion of pin 100 having notch 104. Tabs 99 align with
6 and engage into holes 102 when head 92 is assembled.

7

8 As seen in figure 2, housing 20 has head bracket arms 84. Bracket
9 arms 84 have tabs 86 upon which all head assemblies removably snap
10 thereon. While switch 30 is in the "on" position, female shaft 76 spins in a
11 clockwise direction. While switch 32 is in the "on" position, female shaft 76
12 spins in a counter-clockwise direction.

13

14 As seen in figure 3, face 24 of housing 20 comprises electrical cavity
15 48 and collector cavity 60. Instant invention 10 is powered by battery 52,
16 which is positioned in electrical system 50. Electrical wires from shaver
17 socket 44 connect to battery 52 for charging and recharging. Also within
18 electrical system 50 is motor assembly 70. Electrical wires from switch 30
19 and vacuum switch 32 send electronic signals to engage motor 70.
20 Extending from motor 70 and through collector 62 is female shaft 76.
21 Female shaft 76 has shaft ends 78 and 80 and in the preferred embodiment,
22 is an allen-type shape shaft.

23

24 Extending approximately perpendicularly from female shaft 76 and
25 below collector 62 is propeller 82. While switch 30 is in the "on" position,
26 female shaft 76 spins in a clockwise direction, causing propeller 82 to spin
27 in a clockwise direction and direct air flow from vents 37, seen in figure 1,

1 through electrical cavity 48, collector cavity 60, and out through head
2 assembly 90. This airflow cools instant invention 10.

3

4 While switch 32 is in the "on" position, female shaft 76 spins in a
5 counter-clockwise direction, causing propeller 82 to spin in a counter-
6 clockwise direction and direct air flow from head assembly 90 at end 34,
7 through collector cavity 60, electrical cavity 48, and out through vents 37,
8 seen in figure 1. Collector 62, within collector cavity 60, collects hair,
9 particles, and matter in general when instant invention 10 is utilized in a
10 vacuum manner, such as with heads 92 and 492, seen in figures 1 and 4d
11 respectfully.

12

13 Face 24 comprises a plurality of apertures 54. Pins, not seen,
14 extending from face 22, align with and snap into apertures 54 when
15 housing 20 is assembled.

16

17 Seen in figure 3a are female shaft 76, male adaptor 77, and a bottom
18 view of head 92. In operation, drive pin 88 makes engagement with groove
19 98 of coupling element 94, causing back-and-forth movement in the
20 directions of arrow A for transmission of a drive motion reciprocating in
21 the directions of arrow B to under cutter 130, seen in figure 4a, mounted for
22 oscillatory motion in head 192. Similarly, in operation, drive pin 88 makes
23 engagement with groove 98 of coupling element 94, causing back-and-forth
24 movement in the directions of arrow A for transmission of a drive motion
25 reciprocating in the directions of arrow B to under cutter 95, seen in figure
26 1a, mounted for oscillatory motion in head 92.

27

1 Seen in figures 4 and 4a is a shaving head assembly 190 having
2 detachably secured head 192. Removable head assembly 190 as a hair-
3 shaving unit comprises an under cutter 130 with a coupling element 194,
4 which when assembled, is housed within shaver foil 134. Coupling
5 element 194 transmits the drive motion to under cutter 130. Coupling
6 element 194, which is adapted to be set in a reciprocating motion by the
7 electric drive mechanism from motor 70, is coupled via drive pin 88
8 mounted upon male adaptor 77. Coupling element 194 has aperture 196 for
9 insertion of pin 100 having notch 104. Foil protector cap 138 protects
10 shaver foil 134 when not in use.

11
12 Figure 4b shows an exploded view of removable head assembly 290
13 in which a hair-clipping unit comprises head 292 having a clipper plate
14 242. Biased against clipper plate 242 is a clipper 246. As with removable
15 head assembly 190, coupling element 294 transmits the drive motion to
16 clipper 246. The coupling element 294, which is adapted to be set in a
17 reciprocating motion by the electric drive mechanism from motor 70, is
18 coupled via drive pin 88 mounted upon male adaptor 77.

19
20 Similarly as when used in the hair-shaving defined above, in
21 operation of removable head assembly 290, drive pin 88 makes
22 engagement with groove 98, seen in figure 3a, of coupling element 294,
23 causing back-and-forth movement in the directions of arrow A for
24 transmission of a drive motion reciprocating in the directions of arrow B to
25 clipper 246, causing hair to be clipped and/or cut when biased against
26 clipper plate 242. Guard 250 slides within track 293 to adjust the length of
27 hair to be clipped and/or cut. The numbers on the side of guard 250

1 represent the length of hair to be clipped and/or cut. Coupling element 194
2 has aperture 196 for insertion of pin 200 having notch 204.

3

4 Figure 4c shows a perspective view of the removable head assembly
5 390 having toothbrush assembly 360. Toothbrush assembly 360 comprises
6 circular toothbrush 380 mounted upon handle 364. Extending from handle
7 364 and in opposite direction from circular toothbrush 380, is male shaft
8 372 terminating at end 368. Removable head assembly 390 has through-
9 hole 376. When assembled for operation, male shaft 372 is inserted
10 through through-hole 376 and directly into female shaft 76. Circular
11 toothbrush 380 may be operated with either switch 30 or vacuum switch
12 32. In operation, male shaft 372 extends through handle 364 to drive
13 circular toothbrush 380.

14

15 Figure 4d shows a perspective view of the removable head assembly
16 490 in which a vacuum unit comprises head 492 having a brush 454. When
17 vacuum switch 32 is in the "on" position, female shaft 76 spins in a counter-
18 clockwise direction, causing propeller 82 to spin in a counter-clockwise
19 direction, thus creating a vacuum. Head 492 is mostly hollow to allow
20 matter to pass into collector 62.

21

22 Figure 4e shows a perspective view of removable head assembly 590
23 comprising head 592 and massage pad 556. As with removable head
24 assemblies 190 and 290, coupling element 194, seen in figure 4a, transmits
25 the drive motion to massage pad 556. The coupling element 194, which is
26 adapted to be set in a reciprocating motion by the electric drive mechanism
27 from motor 70, is coupled via drive pin 88 mounted upon male adaptor 77.

28

1 Similarly as when used in the hair-shaving and hair-clipping defined
2 above, in operation of removable head assembly 590, drive pin 88 makes
3 engagement with groove 98, seen in figure 3a, of coupling element 194,
4 causing back-and-forth movement in the directions of arrow A for
5 transmission of vibration, causing massage pad 556 to vibrate.

6

7 As seen in figure 5, power supply cord assembly 600 comprises plug
8 blades 602, which are inserted into an electrical outlet for power and power
9 plug 604, which is inserted into shaver socket 44. Electrical wires from
10 shaver socket 44 connect to battery 52 for charging and recharging, as seen
11 in figure 3.

12

13 The foregoing description conveys the best understanding of the
14 objectives and advantages of the present invention. Different embodiments
15 may be made of the inventive concept of this invention. It is to be
16 understood that all matter disclosed herein is to be interpreted merely as
17 illustrative, and not in a limiting sense.

18

19